**IN THE CLAIMS:**

Amendments to the Claims

Please cancel claims 8 - 10 and 13 - 20 without prejudice or disclaimer of the subject matter therein, and amend the remaining claims and add new claims 21 - 26.

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A method for detecting a defect, comprising the steps of:

repeatedly obtaining ~~an~~ image ~~signal~~ signals of a same portion of a sample by imaging said sample through an ~~objective lens of a bright field~~ optical system by changing optical conditions;

adjusting optical conditions of said ~~bright field~~ optical system by analyzing said repeatedly obtained image signals so as to decrease a difference of contrast in the image signal among segments corresponding to a plurality of regions on said sample;

obtaining the image signal of said sample under the adjusted optical conditions by imaging said sample ~~through said objective lens of bright field optical system having the adjusted optical conditions~~ with said optical system while scanning said sample in a viewing field of said optical system; and

detecting a defect of said sample by processing the image signal of the sample under said adjusted optical conditions.

2. (currently amended) A method for detecting a defect, comprising the steps of:

repeatedly obtaining ~~an~~ image ~~signal~~ signals of a same portion of a sample by illuminating through an ~~objective lens~~ optical system and imaging said sample through said ~~objective lens~~ optical system while changing optical conditions;

adjusting a transmission ratio of 0-th order diffracted light included in entire light generated by said illumination and reflected from said sample as optical conditions by analyzing said repeatedly obtained image signals so as to decrease a difference of contrast in the image signal among segments corresponding to a plurality of regions on said sample;

obtaining the image signal of said sample with the adjusted transmission ratio of said 0-th order diffracted light by imaging said sample with said optical systems while scanning said sample in a viewing field of said optical system under the changed optical conditions in that the transmission ratio of said 0-th order diffracted light has been adjusted; and

detecting defects of said sample by processing the image signal of said sample under the adjusted transmission ratio of said 0-th order diffracted light.

3. (currently amended) A method for detecting a defect ~~according to claim 2~~, comprising the steps of:

obtaining an image signal of a sample by illuminating through an objective lens and imaging said sample through said objective lens;

adjusting a transmission ratio of 0-th order diffracted light included in entire light generated by said illumination and reflected from said sample so as to decrease a difference of contrast in the image signal among segments corresponding to a plurality of regions on said sample;

obtaining the image signal of said sample with the adjusted transmission ratio of said 0-th order diffracted light by imaging said sample under the conditions in that the transmission ratio of said 0-th order diffracted light has been adjusted; and

detecting defects of said sample by processing the image signal of said sample under the adjusted transmission ratio of said 0-th order diffracted light,

wherein said step of adjusting the transmission ratio of said 0-th order diffracted light is performed by utilizing a polarization difference between the 0-th order diffracted light and higher order diffracted light.

4. (currently amended) A method for detecting a defect according to claim 2, wherein said step of adjusting the transmission ratio of said 0-th order diffracted light is performed by utilizing a spatial filter that is positioned on or ~~in the neighborhood of~~ near a Fourier transform plane of said sample and that reduces the transmission ratio of the 0-th order diffracted light.

5. (currently amended) A method for detecting a defect, comprising the steps of:

illuminating a sample through an ~~objective lens~~ optical system;

repeatedly obtaining a plurality of ~~images~~ image signals of a same portion of said sample having different transmission ratios of 0-th order diffracted light through said ~~objective lens~~ optical system by changing the transmission ratio of the 0-th order light included in entire light generated by said illumination and reflected from said sample and imaging said sample;

determining conditions for the transmission ratio of the 0-th order diffracted light on which defect detection sensitivity is increased by ~~using the~~ analyzing said repeatedly obtained plurality of ~~images~~ image signals having the different transmission ratios of said 0-th order diffracted light;

setting the transmission ratio of the 0-th order diffracted light included in the entire light reflected from said sample to said determined conditions for the transmission ratio;

obtaining the ~~image~~ image signals by imaging said sample ~~through said objective lens~~ with said optical system while scanning said sample in a viewing field of said optical system under said determined conditions for said transmission ratio of said 0-th order diffracted light; and

detecting a defect of said sample by using the image captured under said determined conditions for said transmission ratio of said 0-th order diffracted light.

6. (currently amended) A method for detecting a defect ~~according to claim 5~~, comprising the steps of:

illuminating a sample through an objective lens;

obtaining a plurality of images having different transmission ratios of 0-th order diffracted light through said objective lens by changing the transmission ratio of the 0-th order light included in entire light generated by said illumination and reflected from said sample and imaging said sample;

determining conditions for the transmission ratio of the 0-th order diffracted light on which defect detection sensitivity is increased by using the plurality of images having the different transmission ratios of said 0-th order diffracted light;

setting the transmission ratio of the 0-th order diffracted light included in the entire light reflected from said sample to said determined conditions for the transmission ratio;

obtaining the image by imaging said sample through said objective lens under said determined conditions for said transmission ratio of said 0-th order diffracted light; and

detecting a defect of said sample by using the image captured under said determined conditions for said transmission ratio of said 0-th order diffracted light,

wherein said step of obtaining a plurality of images by changing the transmission ratio of said 0-th order diffracted light is performed for a plurality of

regions on said sample, and a particular value of the transmission ratio of the 0-th order diffracted light with which a brightness difference of the detected images among the plurality of regions of said sample is decreased is set as conditions for the transmission ratio of the 0-th order diffracted light that increase said defect detection sensitivity.

7. (currently amended) A method for detecting a defect ~~according to claim 5~~, comprising the steps of:

illuminating a sample through an objective lens;

obtaining a plurality of images having different transmission ratios of 0-th order diffracted light through said objective lens by changing the transmission ratio of the 0-th order light included in entire light generated by said illumination and reflected from said sample and imaging said sample;

determining conditions for the transmission ratio of the 0-th order diffracted light on which defect detection sensitivity is increased by using the plurality of images having the different transmission ratios of said 0-th order diffracted light;

setting the transmission ratio of the 0-th order diffracted light included in the entire light reflected from said sample to said determined conditions for the transmission ratio;

obtaining the image by imaging said sample through said objective lens under said determined conditions for said transmission ratio of said 0-th order diffracted light; and

detecting a defect of said sample by using the image captured under said determined conditions for said transmission ratio of said 0-th order diffracted light,

wherein said step of obtaining a plurality of images by changing the transmission ratio of said 0-th order diffracted light is performed for a plurality of regions on said sample, the images detected for the plurality of regions of said

sample are subjected to second differentiation to sum up the secondary differential values in the images, and a particular value of the transmission ratio of the 0-th order diffracted light with which the summation of the secondary differential values is increased is set as conditions for the transmission ratio of the 0-th order diffracted light that increase said defect detection sensitivity.

Claim 8 (canceled)

Claim 9 (canceled)

Claim 10 (canceled)

11. (currently amended) An apparatus for detecting a defect, comprising:

a stage for loading a sample;

an illuminating system which illuminates the sample loaded on said stage through an objective lens;

an optical control unit which ~~controls~~ adjusts a transmission ratio of 0-th order diffracted light included in entire light illuminated by said illuminating system and reflected regularly from said sample so as to decrease a difference in contrast in an image signal among segments corresponding to a plurality of regions on said sample;

an imaging optical system which ~~images an optical image of said sample through said objective lens, said sample being illuminated by said illuminating system~~ obtains the image signal of said sample with the adjusted transmission ratio of said 0-th order diffracted light by imaging said sample under the conditions in that the transmission ratio of said 0-th order diffracted light has been adjusted; and

an image detecting unit which detects ~~the optical image imaged by said imaging optical system and outputting a digital image; and~~

~~a defect detecting section which detects a defect of said sample by using the digital image output from said image detecting unit~~ defects of said sample by processing the image signal of said sample under the adjusted transmission ratio of said 0-th order diffracted light,

wherein said optical control unit adjusts the transmission ratio of said 0-th order diffracted light by utilizing a polarization difference between the 0-th order diffracted light and higher order diffracted light.

12. (currently amended) An apparatus for detecting a defect according to claim 11, further comprising contrast calculating unit which calculates contrast ~~of said digital image by processing the digital image output from said image detecting unit~~ in the image signal of said sample.

Claim 13 (canceled)

Claim 14 (canceled)

Claim 15 (canceled)

Claim 16 (canceled)

Claim 17 (canceled)

Claim 18 (canceled)

Claim 19 (canceled)

Claim 20 (canceled)

21. (new) A method for detecting a defect, comprising the steps of:

repeatedly obtaining image signals of a same area of a sample by imaging said sample by changing optical conditions;

adjusting optical conditions of an inspection system by analyzing said repeatedly obtained image signals so as to modify a contrast in the image signal;

obtaining image signals of said sample under said adjusted optical conditions by imaging said sample with said inspection system while scanning said sample in a viewing field of said inspection system; and

detecting a defect of said sample by processing the image signal of the sample obtained through said inspection system under said adjusted optical conditions.

22. (new) A method according to claim 21, wherein said optical condition is a polarization state of a light which illuminates said sample in the step of obtaining.

23. (new) A method for detecting a defect, comprising the steps of:

determining an optical condition for inspecting defects on a sample;

adjusting an optical condition of a defect inspection unit for detecting defects on said sample based on said determined optical condition;

detecting defect candidates on a sample with said defect inspection unit under said adjusted optical condition; and

storing data of said detected defect candidate in a memory;

wherein in the step of determining, said optical condition is determined by using image signals which are captured by repeatedly imaging a same area of said sample with different optical conditions.

24. (new) A method according to claim 23, wherein said optical condition is a polarization state of a light which illuminates said sample in the step of detecting.

25. (new) An apparatus for detecting a defect, comprising:

an imaging unit which repeatedly obtains image signals of a same area of a sample by imaging said sample by changing optical conditions;

an adjusting unit which adjusts optical conditions of an inspection system by analyzing said repeatedly obtained image signals so as to modify a contrast in the image signal;

said imaging unit obtaining image signals of said sample under said adjusted optical conditions by imaging said sample with said inspection system while scanning said sample in a viewing field of said inspection system; and

a detecting unit which detects a defect of said sample by processing the image signal of the sample obtained through said inspection system under said adjusted optical conditions.

26. (new) An apparatus according to claim 25, wherein said optical condition is a polarization state of a light which illuminates said sample in the step of obtaining.